

# Bluesil™ RTV 3720 A&B – RTV 3720 SC A&B

October 2017

## Description

The **Bluesil™ RTV 3720 A&B** is a two component silicone elastomer which cures at room temperature by a polyaddition reaction (1:1 ratio).

The material can be applied onto horizontal as well as vertical surfaces thanks to its slight thixotropic behavior, by means of casting or solvent less spraying; in both cases a silicone film is obtained.

The product is available in two versions:

- RTV 3720 A&B: fast cure, for spray application
- RTV 3720 SC A&B: slow cure, for casting application

## Applications

The **Bluesil™ RTV 3720 A&B** is specifically developed to produce a silicone bag on molds used for the processing of composites applying the "vacuum resin infusion" technology.

- The material is not limited to this application.

## Advantages

- Excellent mechanical properties.
- Low viscosity (easy sprayable) with thixotropic behavior.
- Choice between very fast cure and long open time cure (both room temperature)
- High chemical resistance.
- No release of toxic substances during and after curing.

## Typical Properties

### 1. Characteristics of the non cured product

| Properties                                    | Bluesil™ RTV 3720    |                |
|---|----------------------|----------------|
|   | Bluesil™ RTV 3720 SC |                |
|   | RTV 3720 A           | RTV 3720 B     |
| Appearance                                    | Viscous liquid       | Viscous liquid |
| Color   | Translucent          | Light blue     |
| Viscosity (mPa.s, approx.)                    | 30 000               | 30 000         |
| Specific gravity (g/cm <sup>3</sup> , approx) | 1.08                 | 1.10           |

## 2. Polymerization

The following ratio applies to any version of **Bluesil™** RTV 3720 A&B:

**Bluesil™** RTV 3720 A.....100 parts

**Bluesil™** RTV 3720 B.....100 parts

| Properties  | Bluesil™ RTV 3720 A&B | Bluesil™ RTV 3720 SC A&B |
|---|-----------------------|--------------------------|
| Color   | Light blue            |                          |
| Pot life<br>(at 23°C, 50% Relative Humidity, minutes)       | 3                     | 60                       |
| Demolding time<br>(at 23°C, 50% Relative Humidity, minutes) | 15                    | 150                      |

**Remark:** Higher temperatures reduce pot life, lower temperatures increase it.

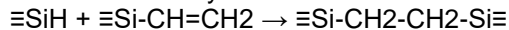
If curing is accelerated by heat the properties of RTV 3720 A&B are not modified, however dimensional changes might occur during post curing of the elastomer which must be taken into account.

### Principle of crosslinking:

**Bluesil™** RTV 3720 A&B cures by polyaddition reaction.

This kind of curing is based on reaction of silicone reactive groups  $\equiv\text{SiH}$  with silicone unsaturated polymers such as  $\equiv\text{Si-CH=CH}_2$ .

This reaction may be summarized as follows:



This reaction can be accelerated by heat.

## 3. Cross linked product

Measured after curing 24 hours at 23°C.

| Properties   | Bluesil™ RTV 3720 A&B Bluesil™ RTV 3720 SC A&B |
|--|--|
| Hardness Shore A<br>(Shore A, on 6 mm thick specimen, approx.) | 20   |
| Tensile Strength at break<br>(MPa, approx.)                    | 4  |
| Elongation at break<br>(%, approx.)                            | 500  |
| Tear strength<br>(kN/m, approx.)                               | 15   |
| Linear shrinkage<br>(%)  | < 0.2  |

## **Bluesil™ RTV 3720 A&B – RTV 3720 SC A&B**

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### **Processing**

#### 1. Mixing of the two components

The material can be processed differently according to the version:

- **Bluesil™** RTV 3720 A&B should only be used by means of a spray or injection equipment with a meter/static mixer, as the pot life is too short to hand-mix and efficiently degas the material.
  
- **Bluesil™** RTV 3720 SC A&B  
Add 100 parts of **Bluesil™** RTV 3720 A to 100 parts of **Bluesil™** RTV 3720 B. The two components may be intimately mixed either by hand or using a low-speed electric or pneumatic mixer to minimize the introduction of air into the mixture.

#### 2. Degassing

After mixing parts A&B of **Bluesil™** RTV 3720 SC it is recommended to degas the product to eliminate the entrapped air introduced in the mixture. The standard (quickcure) version is usually processed using an automatic dosing machine with a static mixer, and by degassing previously each of the two parts, air is not introduced during the mixing.

**Bluesil™** RTV 3720 SC can be degassed under a 30 to 50 mbar vacuum. When the vacuum is applied the product expands 3-4 times its initial volume and bubbles form on the surface. Once bubbles disappear, the mixture collapses back to its initial volume. To complete degassing simply wait few minutes before releasing the vacuum. then the product will then be ready to use.

Remark: pull and release the vacuum several times improves the degassing. For easier degassing only fill a recipient only to 1/3 of its height.

Pour the degassed mixed material slowly in a steady stream from one edge of the mold box so that the material flows evenly over the model minimizing the entrapment of air bubbles under the flowing silicone.

#### 3. Cross linking

At room temperature (23°C) **Bluesil™** RTV 3720 A&B cures in the given demolding time regardless of the mold thickness. For best results, the mold should be allowed to fully cure for 24 hours before using it for production.

Room temperature curing assures the lowest possible shrinkage, if accelerated cure of the SC version is desired, mild heat should be preferred. To minimize shrinkage, the elastomer can be cured at temperature of 60°C for 1 hour, higher temperatures might cause higher shrinkage.

Conversely at lower temperature polymerization is much slower: at 10°C the time necessary to complete cross-linking will be almost double the time at 23°C.

Be aware that contact with certain materials can inhibit the curing of this RTV:

- Natural rubbers vulcanized with sulphur
- Polycondensation RTV catalysed with metal salts
- PVC stabilizing agents
- Amine cured epoxies • Sulphur containing clays.

## Bluesil™ RTV 3720 A&B – RTV 3720 SC A&B

In case of doubts it is recommendable to run a quick test with a small quantity of material in order to assess compatibility. Take note that cross contamination due to not well cleaned tools or devices is frequently the main causes of inhibition. The best way is to use only dedicated gear when processing polyaddition RTVs.

#### 4. Available tools

Following materials can provide an efficient way to customize the application of **Bluesil™** RTV 3720 A&B matching the own process needs:

- Retarder Additive to increase working time (for both versions)
- Accelerator Additive to shorten working time (for SC version)
- Thixotropic Additive to adjust the product rheology (for SC version)
- Silicone Adhesive to repair eventual damages
- Silicone Paste to protect sharp mold edges

Please refer to the corresponding product datasheet for detailed information about the tools properties and their correct application.

### Storage and shelf life

When stored in their original unopened packaging, at a temperature of between -5°C and +30°C, **Bluesil™** RTV 3720 A&B and **Bluesil™** RTV 3720 SC A&B may be stored for up to 12 months from the date of manufacture clearly marked on the packaging. Beyond this date, Elkem Silicones no longer guarantees that the products meet the sales specifications.





### Safety

Please consult the Safety Data Sheets of **Bluesil™** RTV 3720 A&B and **Bluesil™** RTV 3720 SC A&B.

### Packaging

For packaging of **Bluesil™** RTV 3720 A&B and **Bluesil™** RTV 3720 SC A&B, please check with our team.

**Bluesil™** is a registered Trademark of **Elkem SILICONES**

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